

REMARKS

Claims 1-22 are now pending in the application. New claims 8-22 have been added by Applicants to more clearly define the invention. Pending claims 1-7 stand rejected under 35 U.S.C. § 103 (a). The forgoing amendments and following remarks are considered by Applicants to overcome each rejection raised by the Examiner and to place the application in condition for allowance. An early Notice of Allowance is therefore requested.

I. Claim Objections

The Examiner objects to Claim 1 because Applicant uses the word "type" to an otherwise definite phrase. Applicant has deleted the word "type" in Claim 1 as suggested by the Examiner. Thus, this objection is rendered moot.

II. Rejection Of Pending Claims 1, 2, 4, 6 and 7 Under 35 U.S.C. § 103

Claims 1, 2, 4, 6 and 7 stand as rejected under 35 U.S.C. 103(a) as being unpatentable over Gundlach et al., U.S. Patent No. 6,264,731, issued July 24, 2001 ("Gundlach") as applied to claims 1, 2, 4, 6 and 7. This rejection is traversed and believed overcome in view of the following discussion.

A. Relevant Law

An Examiner may find each claimed element of an invention in the prior art references but it is not sufficient to establish obviousness of the invention. *In re Rouffet*, 47 USPQ2d 1453 (Fed. Cir. 1998). A determination of obviousness must involve more than an indiscriminate combination of the prior art; there must be some motivation, suggestion, or teaching of the desirability of combining or modifying the references to arrive at the claimed method. *In re Dance*, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998). Further, rejecting claims solely by finding prior art corollaries for the claimed elements would permit an Examiner to use the claimed inventions itself as a blueprint for piecing together elements in the prior art to defeat the

patentability of the claimed invention is “an inappropriate process by which to determine patentability.” Sensonics, Inc. v. Aerosonic Corp., 38 USPQ2d 1551 (Fed. Cir. 1996).

B. Summary of Cited References

Gundlach teaches an ink composition including water, a colorant and 1,3,5-trioxane or tetraethylene glycol dimethyl ether where the colorant may be a dye, pigment or mixture thereof. Also, Gundlach teaches a printing process which incorporates the ink composition into an ink jet printing apparatus and causes droplets of the ink to be ejected in an image-wise pattern onto a recording sheet.

C. Argument

The Examiner asserts that Gundlach teaches an ink composition comprising water, a colorant, and 1,3,5-trioxane or tetraethylene glycol dimethyl ether. Although the Examiner acknowledges that Gundlach remains silent as to the solubility of the glycol ether as claimed by Applicants, the Examiner asserts that because the glycol ether is soluble in water that the solubility in water would be greater than 1 % absence evidence to the contrary. The Examiner then concludes that it would have been obvious to one of ordinary skill in the art to use a self-dispersing pigment as claimed by Applicants as Gundlach also discloses the use of self-dispersing pigment but shows no example incorporating them. Applicants respectfully disagree with the Examiner’s analysis.

Amended claim 1 defines a water based ink for ink-jet recording comprising a self-dispersing pigment where the self-dispersing pigment is **selected from the group consisting of a surface-treated isoindolinone pigment, a surface-treated dimethyl quinacridone pigment, and a surface-treated phthalocyanine pigment**. The water based ink for ink jet recording of claim 1 also includes water and glycol ether in which a number of carbon atoms of an ethylene oxide moiety are not less than 8. Gundlach does not teach or suggest an ink jet ink where the self-dispersing pigment is selected from the group consisting of a surface-treated isoindolinone

pigment, a surface-treated dimethyl quinacridone pigment, and a surface-treated phthalocyanine pigment. Although Gundlach discloses the use of self-dispersing pigment, Gundlach does not disclose or suggest any specific pigments that can be used as the self-dispersing pigments.

In the present invention, the water based ink includes a self-dispersing pigment selected from the group consisting of a surface-treated isoindolinone pigment, a surface-treated dimethyl quinacridone pigment, and a surface-treated phthalocyanine pigment, water and glycol ether in which a number of carbon atoms of an ethylene oxide moiety are not less than 8. See paragraphs [0038] and [0040]. In other words, these specific self-dispersing pigments are supported in the examples of the specification. Further, the purpose of using self-dispersing pigment in the water based ink for ink-jet recording of the present invention is because the self-dispersing type pigment is dispersible in water without using any dispersing agent. The self-dispersing type pigment is dispersible in water because the self-dispersing type pigment has a hydrophilic function group and/or a salt on the surface of the pigment particle. See paragraph [0014].

In view of the forgoing, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness of claim 1 under 35 U.S.C. § 103(a). As a result, independent claim 1 is considered by Applicants to define patentable subject matter.

Applicants also submit that the Examiner has not established a *prima facie* case of obviousness of claims 2, 4, 6 and 7 under 35 U.S.C. § 103(a). In particular, rejected claims 2, 4, 6 and 7, by virtue of their dependency from claim 1, are similarly considered by Applicants to patentably define itself over the cited references.

III. Rejection Of Pending Claims 1-5 and 7 Under 35 U.S.C. § 103

Claims 1-5 and 7 stand as rejected under 35 U.S.C. § 103(a) as being unpatentable over

Higashiyama et al., U.S. Patent No. 5,938,829, issued August 17, 1999 (“Higashiyama”) in view of Gundlach, U.S. Patent No. 6,264,731, issued July 24, 2001 (“Gundlach”) as applied to claims 1-5 and 7. This rejection is traversed and believed overcome in view of the following discussion.

A. Relevant Law

An Examiner may find each claimed element of an invention in the prior art references but it is not sufficient to establish obviousness of the invention. *In re Rouffet*, 47 USPQ2d 1453 (Fed. Cir. 1998). A determination of obviousness must involve more than an indiscriminate combination of the prior art; there must be some motivation, suggestion, or teaching of the desirability of combining or modifying the references to arrive at the claimed method. *In re Dance*, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998). Further, rejecting claims solely by finding prior art corollaries for the claimed elements would permit an Examiner to use the claimed inventions itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention is “an inappropriate process by which to determine patentability.” *Sensonics, Inc. v. Aerosonic Corp.*, 38 USPQ2d 1551 (Fed. Cir. 1996).

B. Summary of Cited References

Higashiyama teaches an ink comprising a water-soluble dye or pigment, a polyvalent alcohol monoalkyl ether, a polyvalent alcohol and water. The polyvalent alcohol monoalkyl ether can be either tetraethylene glycol monoalkyl ether or pentaethylene glycol monoalkyl ethers. Higashiyama also teaches that this ink is to be used in ink-jet recording apparatuses.

Gundlach is discussed above.

C. Argument

The Examiner acknowledges that Higashiyama and Gundlach do not disclose an ink composition that includes a glycol ether having a solubility in water at 25 °C of at least 1 % as claimed by the Applicants. The Examiner asserts that Higashiyama teaches an ink composition comprising a water-soluble dye or pigment as a coloring agent, a polyvalent alcohol monoalkyl ether, a polyvalent alcohol and water. The Examiner also asserts that the coloring agent may be either a tetraethylene glycol monoalkyl ether or pentaethylene glycol monoalkyl ether. The

Examiner further states that the tetraethylene glycol monoalkyl ether present in the ink composition may include tetraethylene glycol monobutyl ether. The Examiner argues that even though Higashiyama is silent as to the solubility of glycol ether, Applicants disclose in the specification that tetraethylene glycol monobutyl ether has a solubility in water not less than 1 %. Although the Examiner acknowledges that Higashiyama fails to teach the use of a self-dispersing pigment, the Examiner concludes that it would have been obvious to one having ordinary skilled in the art to use replace the pigment and dispersing agent of Higashiyama with self-dispersing pigment of Gundlach. Applicants respectfully disagree with the Examiner's analysis.

As stated above, claim 1 has been amended to define a water based ink for ink-jet recording comprising a self dispersing pigment, water and glycol ether in which the self-dispersing pigment is **selected from the group consisting of a surface-treated isoindolinone pigment, a surface-treated dimethyl quinacridone pigment, and a surface-treated phthalocyanine pigment**. Higashiyama does not teach or suggest water-based ink for ink-jet recording where the self-dispersing pigment is selected from the group consisting of a surface-treated isoindolinone pigment, a surface-treated dimethyl quinacridone pigment, and a surface-treated phthalocyanine pigment. Applicants agree with the Examiner that Higashiyama does not disclose or teach the use of self-dispersing pigment as claimed by the Applicants. Higashiyama instead teaches a water based ink that includes a water-soluble dye or pigment as a coloring agent, a polyvalent alcohol monoalkyl ether, a polyvalent alcohol and water. See Abstract. This is unlike the present invention where the water-base ink includes a self-dispersing pigment.

As stated above, Gundlach also does not teach or suggest an ink jet ink where the self-dispersing pigment is selected from the group consisting of a surface-treated isoindolinone pigment, a surface-treated dimethyl quinacridone pigment, and a surface-treated phthalocyanine pigment. Although Gundlach discloses the use of self-dispersing pigment, Gundlach does not disclose or suggest any specific pigments that can be used as the self-dispersing pigments. Since both Gundlach and Higashiyama fail to teach or suggest the water-based ink for ink-jet recording of the present invention, Applicants believe that the present invention is not obvious over the

teaching of Higashiyama in view of Gundlach. Therefore, an obvious rejection under 35 U.S.C. §103 (a) is improper.

In view of the foregoing, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness of claim 1 under 35 U.S.C. § 103(a). As a result, independent claim 1 is considered by Applicants to define patentable subject matter.

Applicants also submit that the Examiner has not established a *prima facie* case of obviousness of claim 1 under 35 U.S.C. § 103(a). In particular, rejected claims 2-5 and 7, by virtue of their dependency from claim 1, respectively, are similarly considered by Applicants to patentably define itself over the cited references.

IV. Newly Presented Claims 8-22

Claims 8-22 have been added to the application to recite novel features disclosed in the specification. Applicants respectfully submit that the cited references neither disclose nor teach the water base ink for ink-jet recording and/or the ink cartridge recited in the newly presented claims 8-22. More specifically, new claim 8 recites the feature of “a self-dispersing pigment, a surface thereof being sulfonated”. This recitation is substantially supported in paragraphs [0038], [0040] and [0042] of the specification. Neither Gundlach nor Higashiyama discloses or suggests the specific self-dispersing pigment as defined in claim 8.

New claim 15 is added to limit glycol ether to tetraethylene glycol butyl ether used in the examples, and to recite that the ink contains 2-pyrrolidone. None of the cited references singly discloses or suggest tetraethylene glycol butyl ether and 2-pyrrolidone in combination, and there is no motivation to combine the teaching of Gundlach and Higashiyama in order to achieve the invention of claim 15.

New claim 19 is added to limit glycol ether to tripropylene glycol butyl ether used in examples. None of the cited references discloses or suggest tripropylene glycol butyl ether as the glycol ether for the water base ink of claim 19. Therefore, these references cannot anticipate the claims 8-22. Moreover, the cited references similarly do not teach or suggest the inks and or ink cartridge for use in ink-jet recording systems as defined in these claims. Therefore, these references cannot render the new claims obvious.

V. Conclusion

For the reasons presented above, claims 1-22, all the claims pending in the application, are believed by Applicants to define patentable subject matter and should be passed to issue at the earliest possible time. A Notice of Allowance is requested.

Respectfully submitted,

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